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IGNITION APPARATUS.

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This invention relates to ignition apparatus, and has for its object to provide certain improvements which increase the efficiency and durability as well as to obtain simplicity in mechanical and electrical features, particularly for certain systems for which apparatus satisfactory in all respects have not heretofore been provided.

Further the invention aims to provide a means for facilitating the timing of ignition, and also means whereby lubricant may be supplied to the rotor driving shaft, not only to permit ease of operation thereof, but to minimize wear which heretofore has adversely affected the timing.

Our invention has particular utility for battery ignition, and in certain aspects the invention has particular reference to an ignition apparatus for Ford ignition systems wherein there are separate coils for the different cylinders, and a rotor or timer for distributing or handling low tension currents, though numerous features of the invention are not confined to such systems.

In the latter aspects, the invention may be regarded as an improvement over the subject matter of an application filed in the name of Albert G. Karkau, Serial No. 608,883.

The invention may be here briefly summarized as consisting in certain novel details of construction, and combinations and arrangements of parts will be described in the specification and pointed out in the appended claims.

In the accompanying sheets of drawings, Fig. 1 is an elevation of apparatus formed in accordance with my invention; Fig. 2 is a sectional view of the same; Fig. 3 is a view looking at the top of Figs. 1 and 2 with the cap of the rotor or timer case removed; Fig. 4 is a bottom view of the rotor head; Fig. 5 is an elevation of the rotor head removed from the case, showing particularly the condenser which rotates with the brush and circuit breaker; Fig. 6 is a view of a metal stamping carried by the rotor for forming the condenser connections as well as the grounding connection; Fig. 7 is a sectional view looking upward substantially along the line 7—7 of Fig. 2; Fig. 8 is a view looking at the inside of the rotor cap showing particularly the resistance member supported therein; and Fig. 9 is a diagram of the electrical connections which may be utilized when the invention is applied to a Ford ignition system.

In this instance the apparatus includes a shaft 10 adapted to be supported in upright position by the upper and lower bearings 11 and 12, the latter being in a bracket or casting 13 designed to be secured to the engine, said shaft adapted to be driven by a shaft 14 which when the device is applied to a Ford car is the cam shaft. In this instance the shaft 14 rotates the shaft 10 through spiral gears 15 and 16 enclosed in a cup-shaped housing 13^a forming a part of the bracket and adapted to be clamped in tight engagement with the engine frame.

At the top of the bracket 13 is a rotor case or housing composed of a cup-shaped lower portion 17 to the top of which is secured an insulating ring 18 to which is secured a removable cap 19, somewhat elongated or higher than is usually found in devices of this kind.

The base or cup 17 has secured to the bottom thereof, a plate or disk 20 with a downward tubular extension 21 forming the bearing 11 for the shaft 10, this tubular extension being rotatively fitted in the upper part of the bracket 13. The plate 20 also has an upward tubular extension 22 located in the lower part of the rotor case or housing, this being for a purpose to be referred to presently.

The insulating ring 18 carries at its inner periphery a series of stationary contacts 23 to which are attached terminal or binding posts 24, in this instance four in number, to which electrical conductors of the system are adapted to be attached.

In applying this apparatus to a Ford ignition system, the terminals 24 will be connected to conductors 25 connected to the primaries 26 of the ordinary Ford coils, common terminals of which primaries will be connected to a source of current, here indicated as the battery 27 (see Fig. 9). The secondaries 28 of the coils will be connected to the spark plugs 29 and to ground in the usual manner.

Attached to the top of shaft 10, and located in the case, is a rotor or rotating unit involving important features of our invention in respect to the parts that it carries and the manner in which they are arranged and